

WHAT IS CLAIMED IS

Related Pending Application  
Related Case Serial No: 09/603, 917  
Related Case Filing Date: 06-26-00

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1. An image forming device management system including a customer premise system and a center system linked by a public switched telephone network PSTN, the customer premise system having a plurality of image forming devices and a management apparatus connected onto a first LAN at customer premises, the center system having one or a plurality of computers connected onto a second LAN at a center location, the image forming device management system comprising:
  - 10 monitoring means, provided in the management apparatus, for monitoring operating conditions of the image forming devices on the first LAN;
  - 15 storing means, provided in the management apparatus, for storing results of the monitoring of the operating conditions by the monitoring means;
  - 20 failure detecting means, provided in the management apparatus, for detecting a failure in any of the image forming devices on the first LAN;
  - 25 first message means, provided in the management apparatus, for transmitting a failure message to the center system via the PSTN when a failure is detected by the failure detecting means, the failure



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- message including a failure code provided to identify the failure;
- reading means, provided in the center system, for reading the results of the monitoring of the operating conditions of the image forming devices from the management apparatus;
- 5 retrieval means, provided in the center system, for receiving the failure message transmitted by the first message means, and for accessing a database of the center system by using the failure code of the received failure message so as to produce results of the accessing; and
- 10 second message means, provided in the center system, for extracting a service department ID from the database based on the accessing results produced by the retrieval means, and for transmitting a service request message to a service department indicated by the service department ID.

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2. The image forming device management system according to
- 20 claim 1, wherein the management apparatus is configured such that the management apparatus can be selectively set in one of an auto message mode or a manual message mode, and, when the management apparatus is set in the auto message mode, the first message means automatically transmits the failure message to the
- 25 center system upon occurrence of the failure, and, when the

management apparatus is set in the manual message mode, the first message means transmits the failure message to the center system in response to a manual operation performed on the management apparatus by an operator.

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3. The image forming device management system according to  
10 claim 2, wherein the management apparatus is configured such that  
the setting of the management apparatus in one of the auto message  
mode or the manual message mode can be changed in response to a  
manual operation performed on the management apparatus by the  
operator.

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4. The image forming device management system according to  
20 claim 2, wherein the management apparatus is configured such that  
the setting of the management apparatus in one of the auto message  
mode or the manual message mode can be changed in response to a  
setting command remotely sent to the management apparatus by the  
center system.

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5. The image forming device management system according to  
claim 1, wherein the center system further includes maintenance  
means for changing a message destination setting data, stored in the  
management apparatus, to a new data by remotely transmitting a  
5 setting command from the center system to the management  
apparatus.

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6. The image forming device management system according to  
claim 1, wherein the center system further includes maintenance  
means for changing a device-type-basis message destination setting  
data, stored in the management apparatus with respect to respective  
15 types of the image forming devices, to a new data by remotely  
transmitting a setting command from the center system to the  
management apparatus.

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7. The image forming device management system according to  
claim 1, wherein the customer premise system further includes a  
communication adapter which is provided to connect the  
25 management apparatus through the communication adapter to the

PSTN, and a communication line, provided for one of the image forming device to connect to the PSTN, is shared with the management apparatus by using the communication adapter.

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8. The image forming device management system according to claim 5, wherein the message destination setting data stored in the  
10 management apparatus includes at least a destination telephone number, and the maintenance means changes the destination telephone number to a new destination telephone number by remotely transmitting a predetermined destination setting command code to the management apparatus.

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9. The image forming device management system according to claim 5, wherein the message destination setting data stored in the  
20 management apparatus includes at least a destination electronic mail address, and the maintenance means changes the destination electronic mail address to a new destination electronic mail address by remotely transmitting a predetermined destination setting command code to the management apparatus.

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10. The image forming device management system according to claim 5, wherein the message destination setting data stored in the management apparatus includes at least a destination network address, and the maintenance means changes the destination network address to a new destination network address by remotely transmitting a predetermined destination setting command code to the management apparatus.

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11. A center system for use in an image forming device management system including a customer premise system and the center system linked by a public switched telephone network PSTN, the customer premise system having a plurality of image forming devices and a management apparatus connected onto a first LAN at customer premises, the center system having one or a plurality of computers connected onto a second LAN at a center location, the center system comprising:

20 reading means for reading results of monitoring of operating conditions of the image forming devices from the management apparatus;

25 retrieval means for receiving a failure message transmitted by the management apparatus via the PSTN, and for accessing a database of the center system by using a failure code contained in

the received failure message so as to produce results of the accessing; and

message means for extracting a service department ID from the database based on the accessing results produced by the retrieval  
5 means, and for transmitting a service request message to a service department indicated by the service department ID.

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12. The center system according to claim 11, further comprising maintenance means for changing a message destination setting data, stored in the management apparatus, to a new data by remotely transmitting a setting command from the center system to  
15 the management apparatus.

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13. The center system according to claim 11, further comprising maintenance means for changing a device-type-basis message destination setting data, stored in the management apparatus with respect to respective types of the image forming devices, to a new data by remotely transmitting a setting command  
25 from the center system to the management apparatus.

14. The center system according to claim 12, wherein the message destination setting data stored in the management apparatus includes at least a destination telephone number, and the maintenance means changes the destination telephone number to a 5 new destination telephone number by remotely transmitting a predetermined destination setting command code to the management apparatus.

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15. The center system according to claim 12, wherein the message destination setting data stored in the management apparatus includes at least a destination electronic mail address, and the 15 maintenance means changes the destination electronic mail address to a new destination electronic mail address by remotely transmitting a predetermined destination setting command code to the management apparatus.

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16. The center system according to claim 12, wherein the message destination setting data stored in the management apparatus 25 includes at least a destination network address, and the maintenance

means changes the destination network address to a new destination network address by remotely transmitting a predetermined destination setting command code to the management apparatus.

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17. A management apparatus for use in an image forming device management system including a customer premise system and  
10 a center system linked by a public switched telephone network PSTN, the customer premise system having a plurality of image forming devices and the management apparatus connected onto a first LAN at customer premises, the center system having one or a plurality of computers connected onto a second LAN at a center location, the  
15 management apparatus comprising:

monitoring means for monitoring operating conditions of the image forming devices on the first LAN;

storing means for storing results of the monitoring of the operating conditions by the monitoring means;

20 failure detecting means for detecting a failure in any of the image forming devices on the first LAN; and

message means for transmitting a failure message to the center system via the PSTN when a failure is detected by the failure detecting means, the failure message including a failure code  
25 provided to identify the failure.

18. The management apparatus according to claim 17, wherein  
the management apparatus is configured such that the management  
apparatus can be selectively set in one of an auto message mode or a  
manual message mode, and, when the management apparatus is set in  
5 the auto message mode, the message means automatically transmits  
the failure message to the center system upon occurrence of the  
failure, and, when the management apparatus is set in the manual  
message mode, the message means transmits the failure message to  
the center system in response to a manual operation performed on  
10 the management apparatus by an operator.

15 19. The management apparatus according to claim 18, wherein  
the management apparatus is configured such that the setting of the  
management apparatus in one of the auto message mode or the  
manual message mode can be changed in response to a manual  
operation performed on the management apparatus by the operator.

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25 20. A management method for an image forming device  
management system including a customer premise system and a

center system linked by a public switched telephone network PSTN,  
the customer premise system having a plurality of image forming  
devices and a management apparatus connected onto a first LAN at  
customer premises, the center system having one or a plurality of  
5 computers connected onto a second LAN at a center location, the  
management method comprising the steps of:

- monitoring operating conditions of the image forming devices  
on the first LAN by the management apparatus;
- storing results of the monitoring of the operating conditions of  
10 the image forming devices;
- detecting a failure in any of the image forming devices on the  
first LAN by the management apparatus;
- transmitting a failure message from the management apparatus  
15 to the center system via the PSTN when the failure is detected, the  
failure message including a failure code provided to identify the  
failure;
- reading the monitoring results from the management apparatus  
by the center system;
- receiving the failure message, transmitted by the management  
20 apparatus, at the center system;
- accessing a database of the center system by using the failure  
code of the received failure message so as to produce results of the  
accessing;
- extracting a service department ID from the database based on  
25 the accessing results; and

transmitting a service request message from the center system  
to a service department indicated by the service department ID.

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ABSTRACT OF THE DISCLOSURE

In an image forming device management system and method, a failure in any of a plurality of image forming devices on a first LAN is detected by a management apparatus. A failure message is  
5 transmitted from the management apparatus to a center system via a public switched telephone network when the failure is detected, the failure message including a failure code provided to identify the failure. The failure message, transmitted by the management apparatus, is received at the center system. A database of the center  
10 system is accessed by using the failure code of the received failure message so as to produce results of the accessing at the center system. A service department ID is extracted from the database based on the accessing results. A service request message is transmitted from the center system to a service department indicated  
15 by the service department ID.

**FIG. 1**

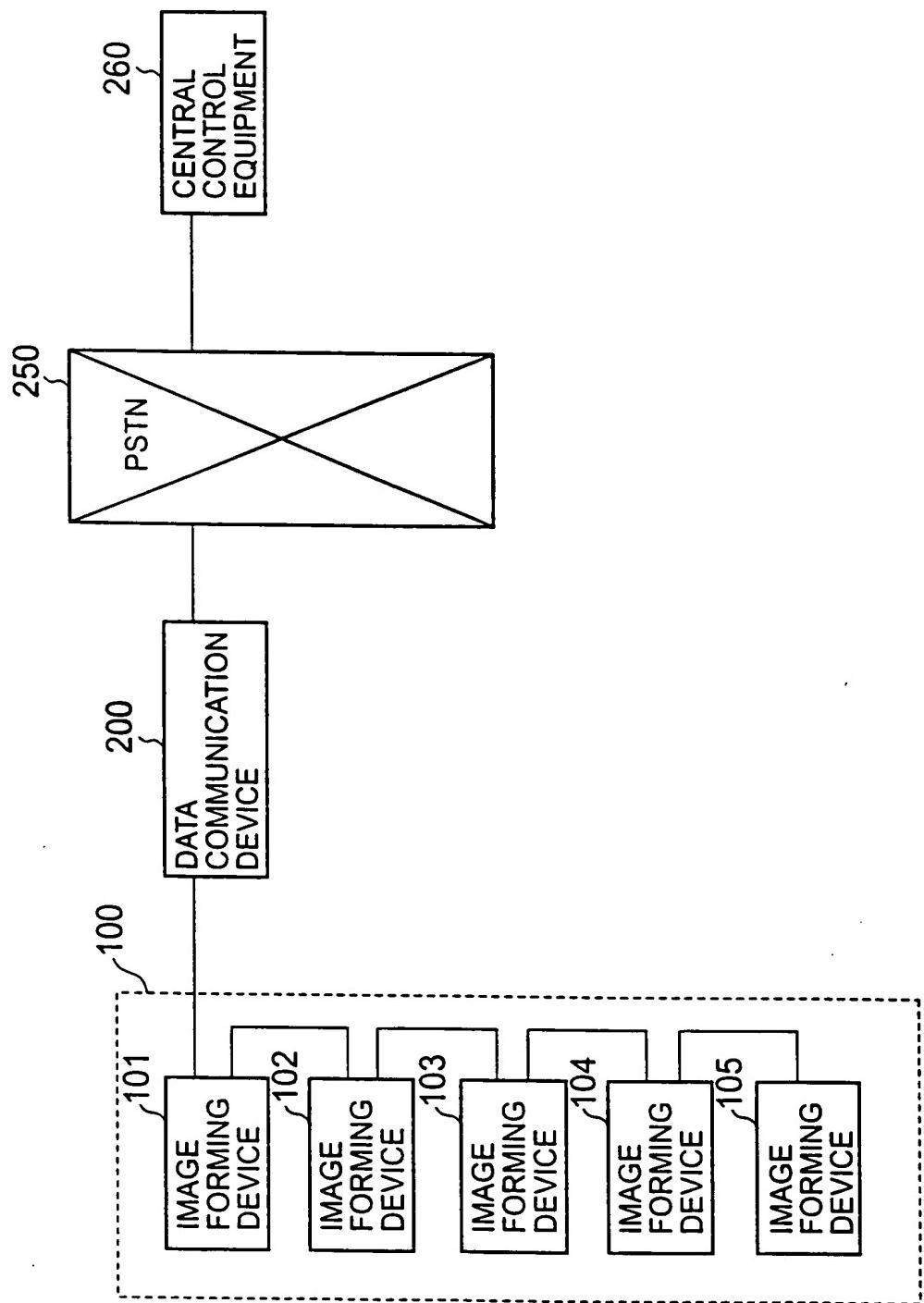


FIG.2

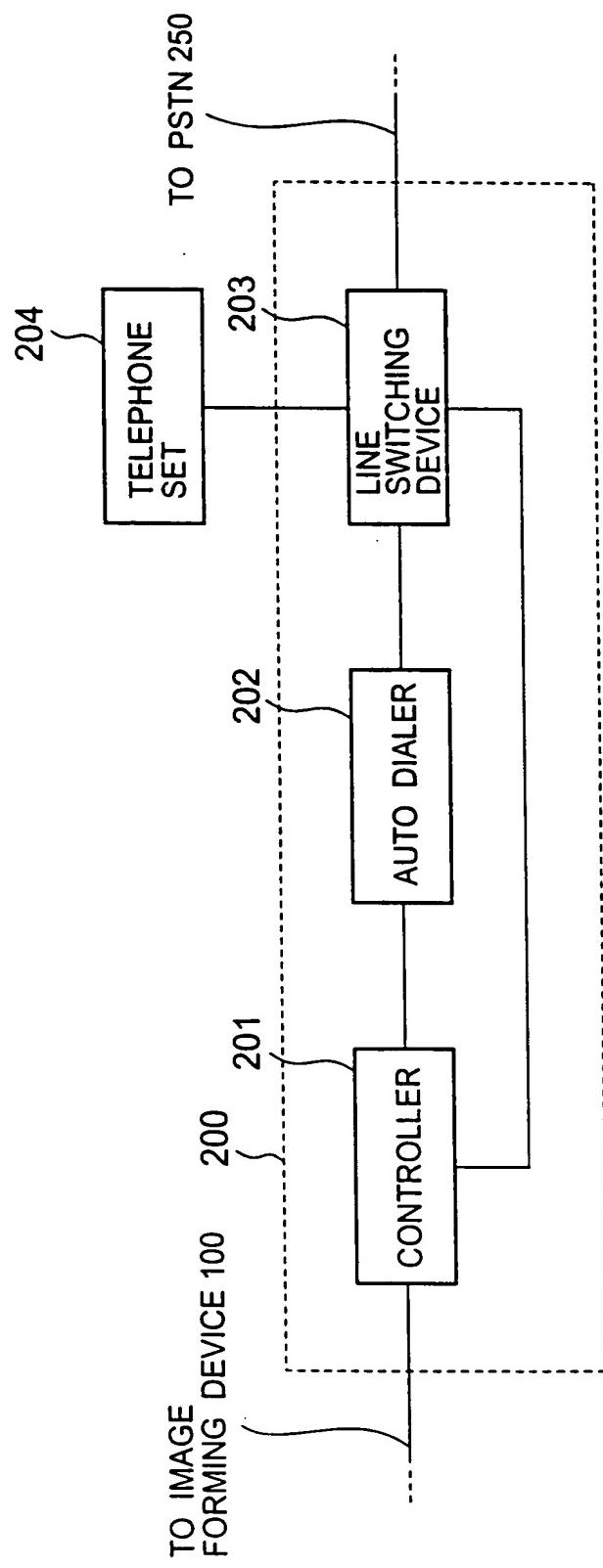


FIG.3

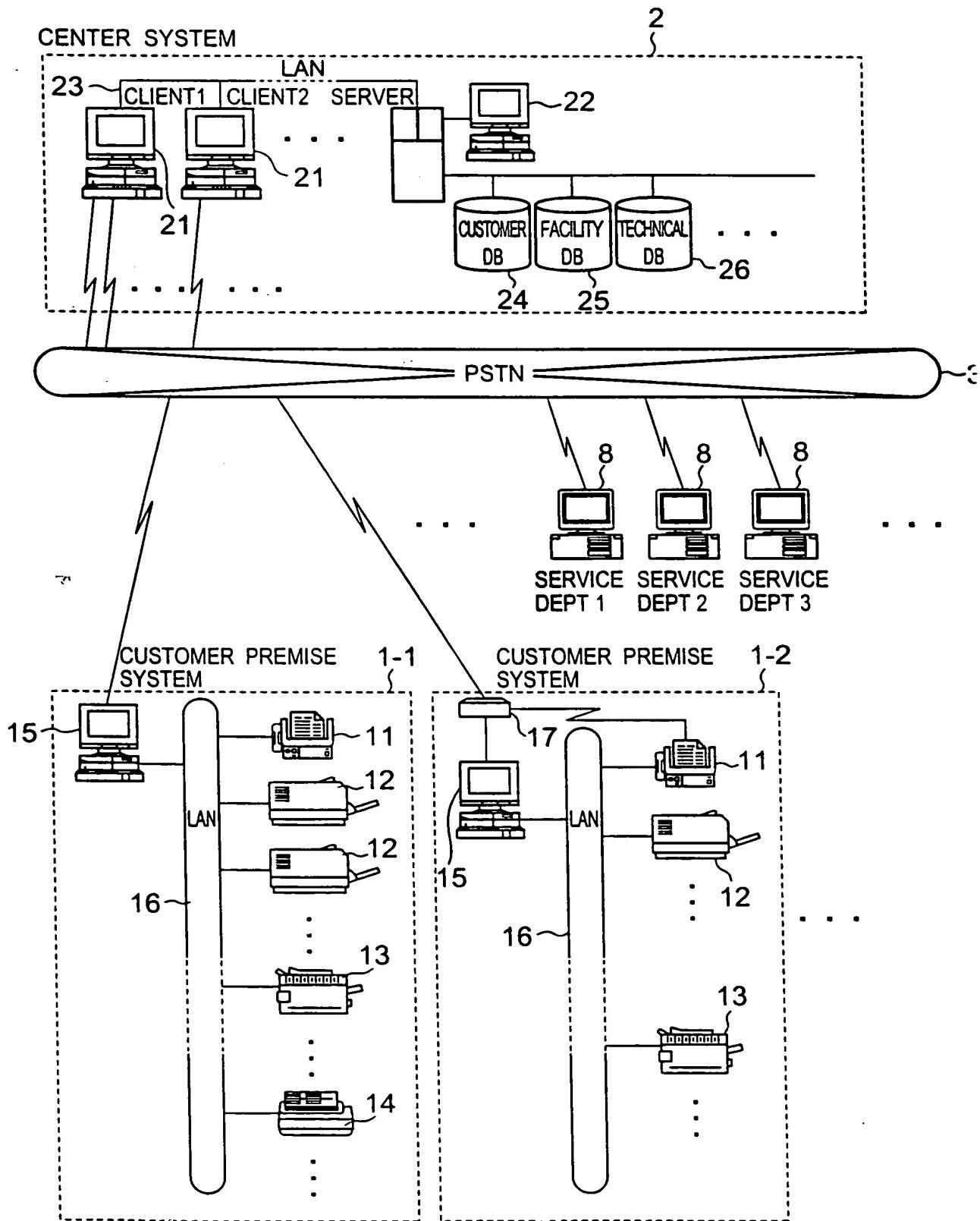
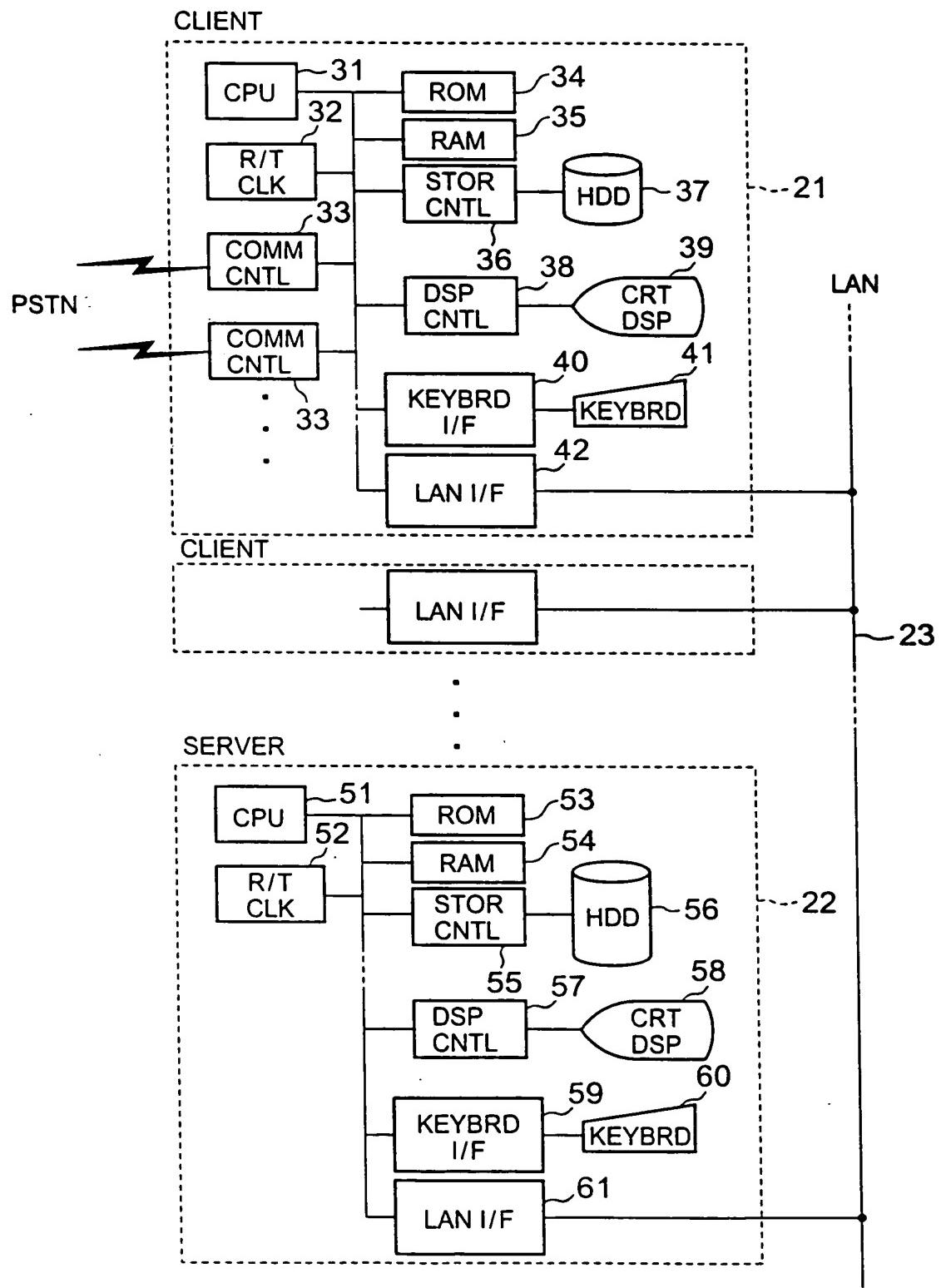


FIG.4



**FIG.5**

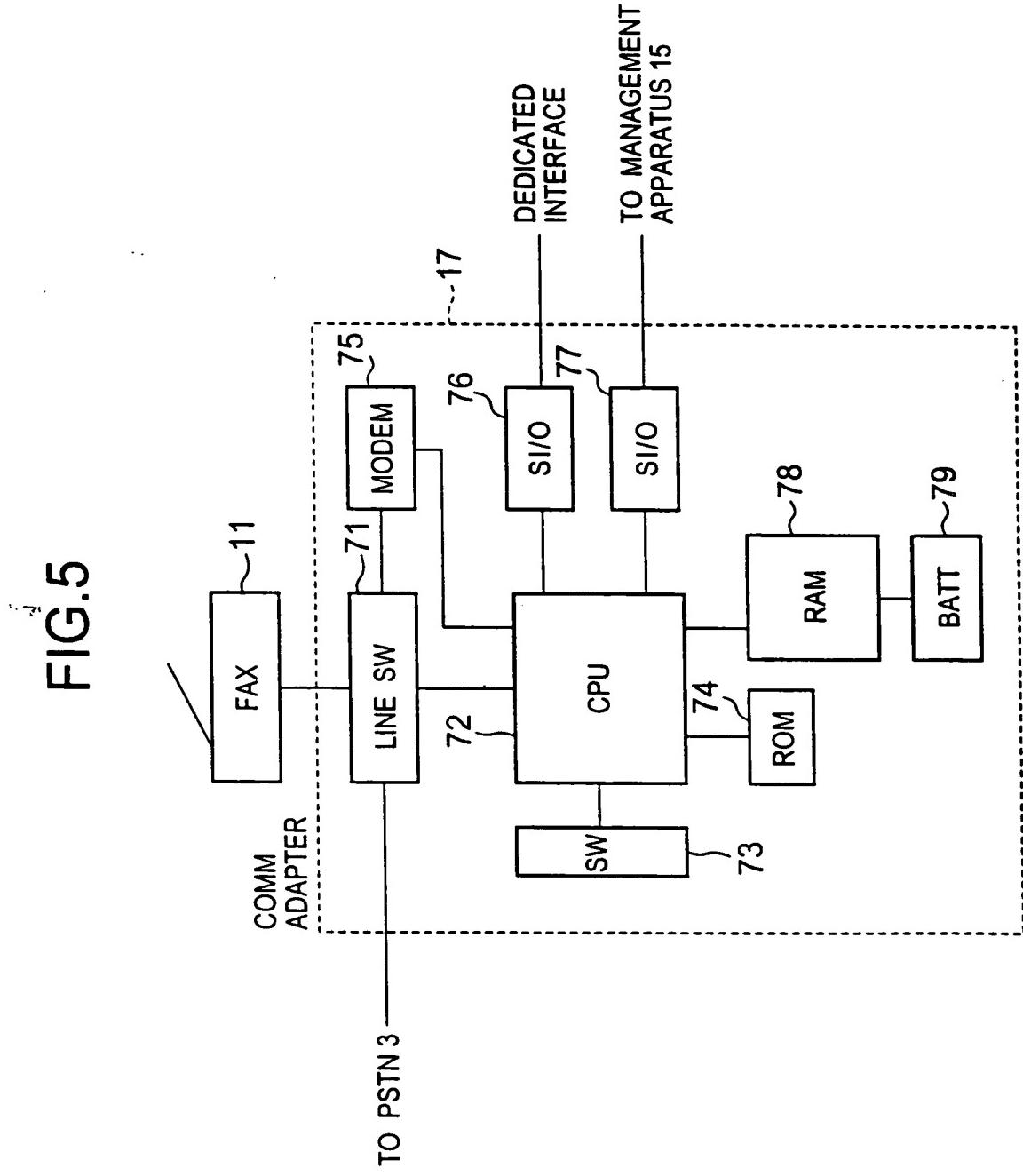
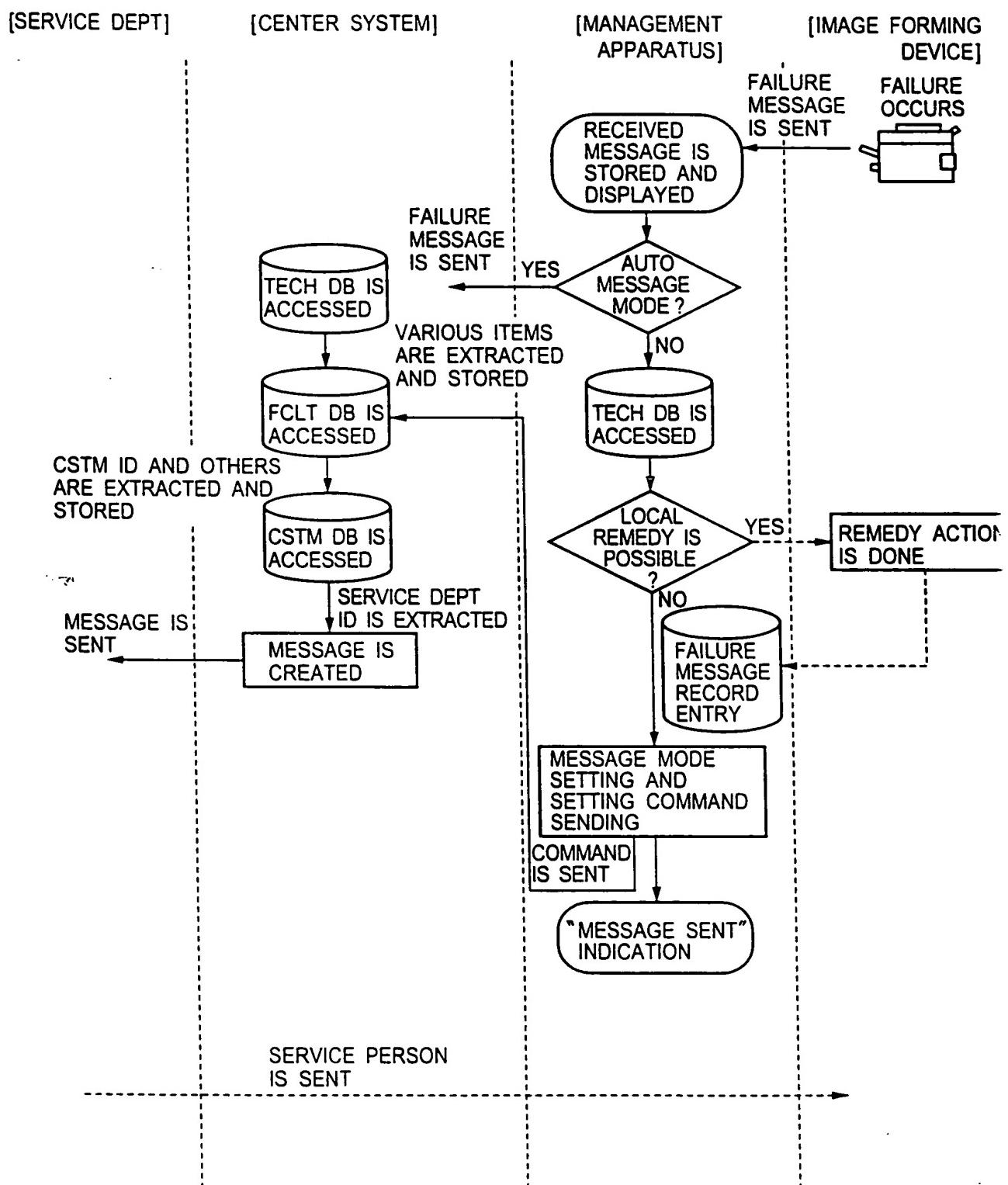


FIG.6



## FIG.7A

CUSTOMER ID	CUSTOMER NAME	CUSTOMER ADDRESS	DEPT	PERSON IN CHARGE	PERSON IN CHARGE		COMM ADAPTER TYPE AND ID
					TEL NO	FAX NO	
XX560	KKKKK	XXXXXX	DDD	AAAA	XX…X 012-34-5678	XX…X	XX…X 99011234

## FIG.7B

SALES DEPT						SERVICE DEPT				
	DEPT ID	PERSON	TEL NO	FAX NO	E/MAIL ADDRESS	DEPT ID	PERSON	TEL NO	FAX NO	E/MAIL ADDRE
	EEEE	BBBB	XX…X	XX…X	XX…X	FFFF	CCCC	XX…X	XX…X	XX…X

## FIG.8A

DEVICE GROUP	DEVICE TYPE	DEVICE ID	DATE OF DELIVERY	METHOD OF DELIVERY	CUSTOMER ID	MAINTENANCE CONTRACT
IPSI04500	XXX	12345	98.10.25	XX	XXX999	

## FIG.8B

FACILITY INFORMATION					
ROM VERSION	DRIVER VERSION	FAILURE HISTORY	PV INFO	MIB INFO	.....

**FIG.9**

FAILURE CODE	FAILURE NAME	SYMPTOMS	CAUSES	REMEDY CODE(a)	REMEDY CODE(b)	REMEDY CODE(c)
XX999	XX...X	X.....X	X.....X	9999	9999	9999
			X.....X	9999	9999	9999
			X.....X	9999	9999	9999
XX999	XX...X	X.....X	X.....X	9999	9999	9999
.	.	.	.	.	.	.
.	.	.	.	.	.	.

FIG. 10

DEVICE TYPE	DEVICE ID	DATE OF OCCURRENCE	TIME OF OCCURRENCE	FAILURE CODE	REMEDIY CODE			ACTION	DEPT RESPONSIBLE
					(1)	(2)	(3)		
XXX	1234	99/02/01	16:40:30	SC123	0101	0113		DONE	1001
XXX	5678	99/01/29	12:11:04	SC201	0200			WAIT	1001

## FIG.11A

MESSAGE FORMAT  
(IMAGE FORMING DEVICE  
→MANAGEMENT APPARATUS)

{	DEVICE TYPE	DEVICE ID	OPERATING CONDITION CODE	FAILURE CODE	DATE	TIME	MIB INFORMATION	}
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## FIG.11B

MESSAGE FORMAT  
(MANAGEMENT APPARATUS→CENTER SYSTEM)

{	DEVICE TYPE	DEVICE ID	FAILURE CODE	DATE/TIME OF OCCURRENCE	DATE/TIME OF MESSAGE	PERSON IN CHARGE	TEL NO	NAME	}
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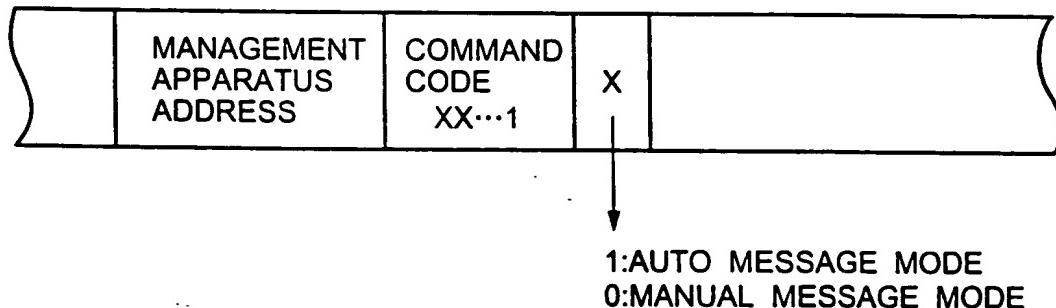
FIG.12

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IMAGE FORMING DEVICE MANAGEMENT			AUTO OR MANUAL	CURRENT DATE/TIME			
DEVICE TYPE	DEVICE ID	DEVICE ADDRESS	OPERATING CONDITION	SYMPTOMS	DATE OF OCCURRENCE	TIME OF OCCURRENCE	REMARKS
NSX50	12556	115.156 48.006	PRINT	NORMAL			
NSX50	12559	115.156 48.007	WAIT	NORMAL			
LP208	50363	115.156 48.051	WAIT	NORMAL			
LP500	38664	115.156 48.058	SC405	DRUM TROUBLE	99/02/09	21:15:18	MESSAGE SENT 02/09 21:20
LP501	40058	115.156 48.103	SPOOL	NORMAL			
LP501	40086	115.156 48.106	JM102	2ND TRAY PAPER SUPPLY	99/02/10	08:59:48	

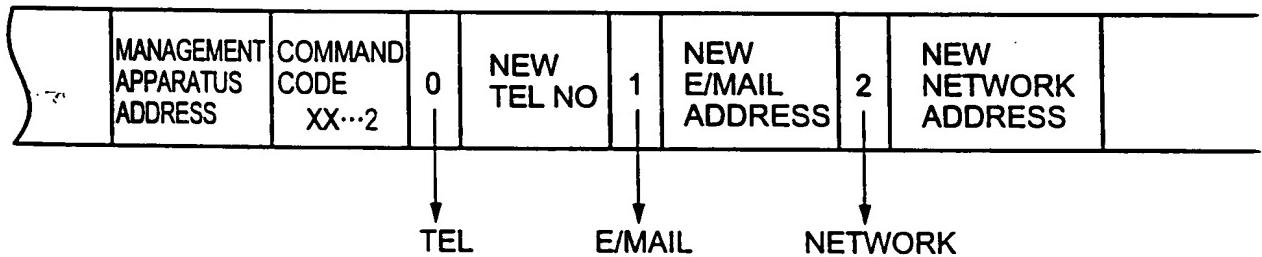
## FIG.13A

FORMAT OF  
MESSAGE MODE SETTING COMMAND  
(CENTER SYSTEM→ MANAGEMENT APPARATUS)



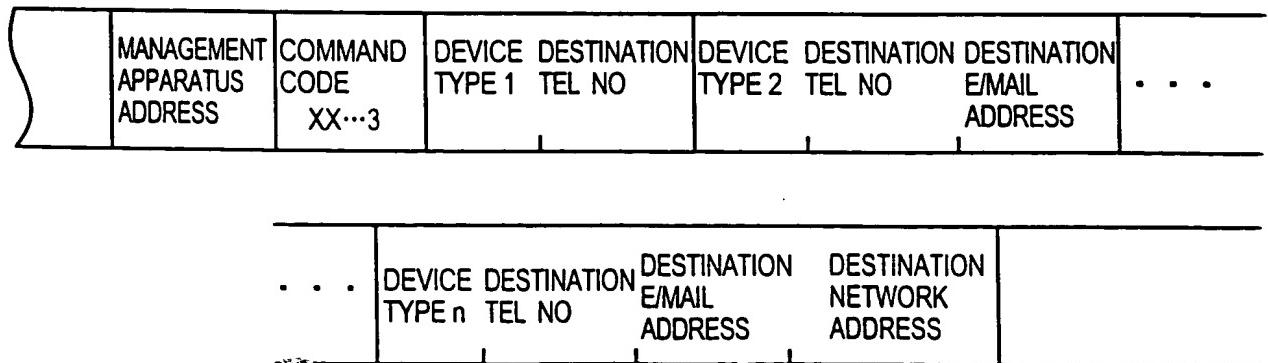
## FIG.13B

FORMAT OF  
MESSAGE DESTINATION SETTING COMMAND  
(CENTER SYSTEM→ MANAGEMENT APPARATUS)



## FIG.13C

FORMAT OF DEVICE-TYPE-BASIS MESSAGE  
DESTINATION SETTING COMMAND  
(CENTER SYSTEM→ MANAGEMENT APPARATUS)



# FIG.14

DEVICE TYPE	MESSAGE DESTINATION TEL NO	MESSAGE DESTINATION E/MAIL ADDRESS	...
AA-100 AB-310 .	03-3456-7890 XX.....X	XX.....X XX.....X	

**FIG.15**

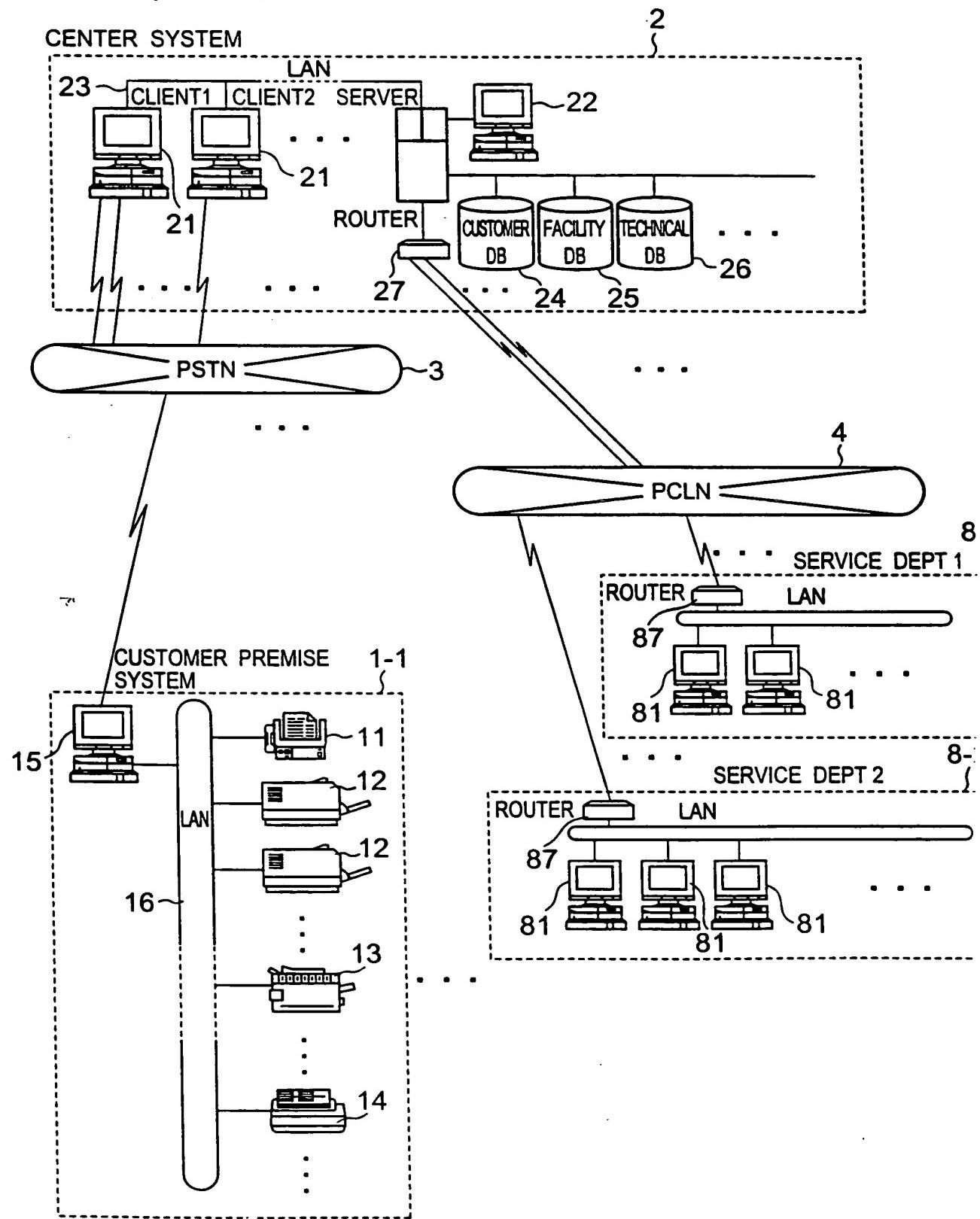


FIG.16

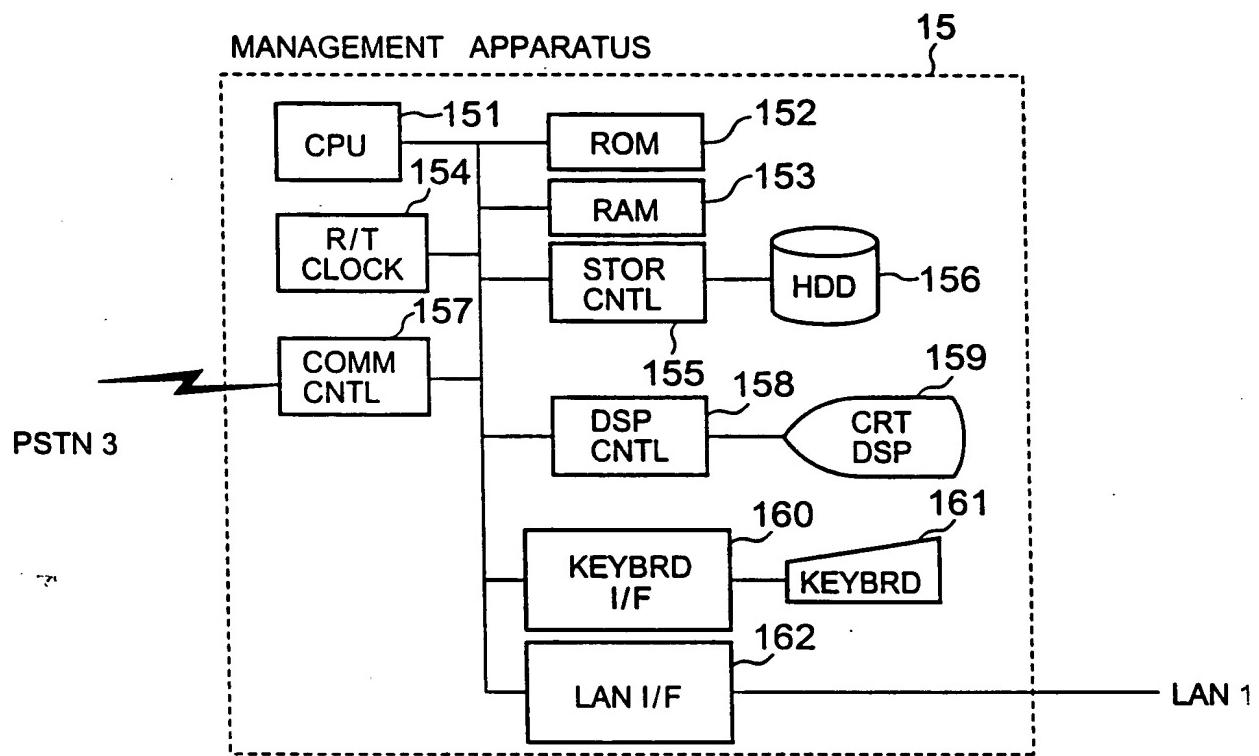


FIG.17

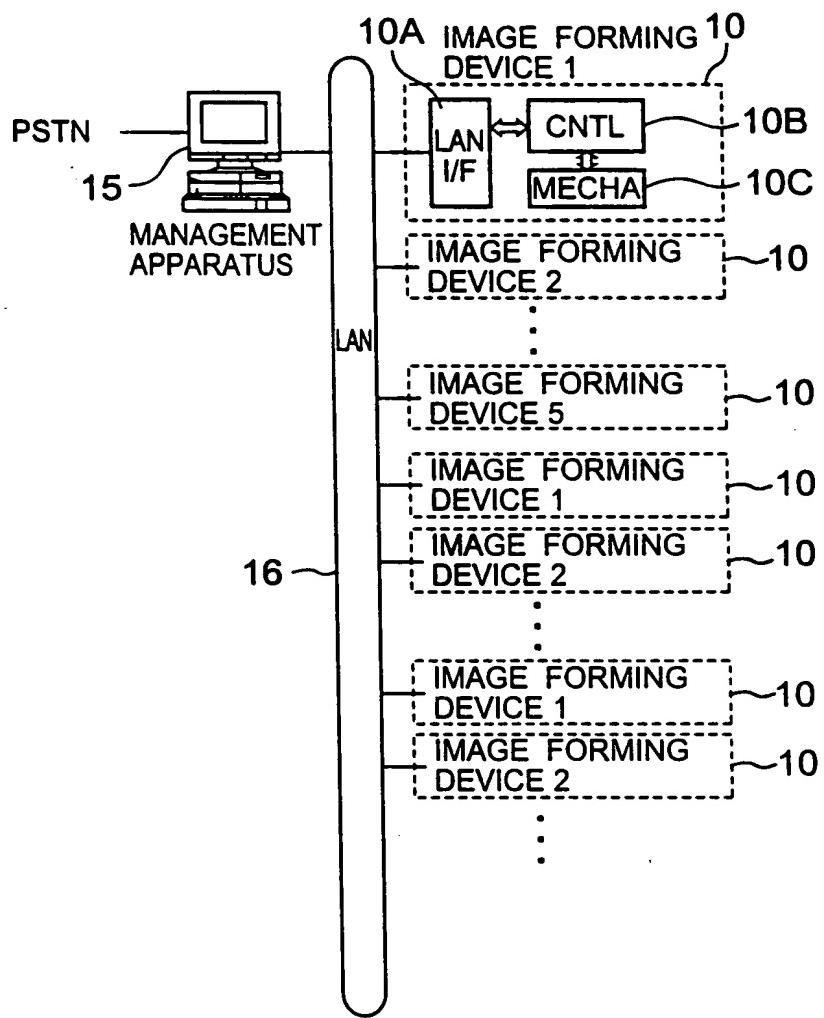


FIG.18 PRIOR ART

